

EASTERN RIVERS AND MOUNTAINS NETWORK

Spring Field Seasons Begin

Spring is here and Louisiana Waterthrush have returned and some spring ephemerals are beginning to emerge. As I type this opening section of the ERMN Newsletter, Brady Mattsson is already on the ground at NERI further developing and collecting pilot data for the waterthrush monitoring protocol and Stephanie Perles is also arriving at NERI for her first efforts field testing the herbaceous component of the Forest, Shrubland and Herbaceous monitoring protocol. Work that will take place at other ERMN parks as well. We've come along way over the winter with protocol development and these important first field efforts are great examples of that progress. Thanks to all who have helped us think through various aspects of these endeavors at workshops, teleconferences, summits, emails, and phone calls. Thanks also to the ERMN parks for all the logistical planning and support you have (and will) provide during these first (and future) field seasons. I already look forward to the next Newsletter when we can begin to relate some of what we learn during the next five months.



Red trillium (*Trillium erectum*). Photo S. Perles

Inside this Newsletter you'll find a short update on all of the ERMN vital signs as well as an update on the NPSpecies certification effort and a few calendar items. -- Matt



Cutleaf toothwort (*Cardamine concatenata*).
Photo S. Perles.

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Status of ERMN Protocol Development



Air Quality

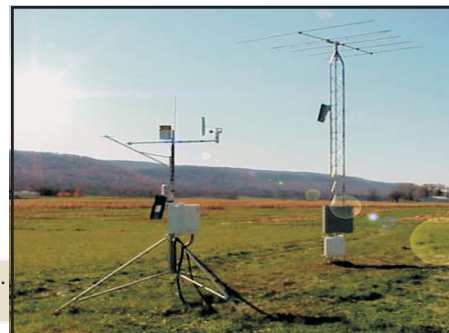
NPS Air Resource Division continues to develop a report template and scorecard illustrating air resource condition and trend. While only wet and dry deposition were identified as priority vital signs for the ERMN, these reports will cover trends in atmospheric ozone, mercury deposition, visibility, and particulate matter as well.

A picture of common milkweed (Asclepias syriaca) with ozone damage at ALPO. Photo D. Davis.

Weather and Climate

The network continues to work with Paul Knight, PA State Climatologist, to complete an inventory of weather stations and make data from relevant stations accessible to the network and network parks via a web interface. This endeavor is rolling seamlessly into the development of a weather and climate monitoring protocol. Paul hopes to have a summary of work thus far available for ERMN review in April.

A weather station similar to those around each park. Photo courtesy of NRCS.



Bloodroot (Sanguinaria canadensis). Photo S. Perles.

Forest, Woodland, Shrubland and Riparian Vegetation

The first draft of the vegetation monitoring protocol has been developed and pilot data will be collected in most of the network parks this field season. Our 3-person field crew will be collecting data on canopy and subcanopy trees, shrubs, tree regeneration, herbaceous plants, and coarse woody debris. The vegetation monitoring protocol is broadly based on the US Forest Service's Forest Inventory and Analysis Program plot design. Many people have contributed to the development of the vegetation monitoring protocol, including Dr. Jim Finley, Andy Filipczak, and Stephanie Perles of Penn State University, as well as researchers in other NPS networks in the eastern US. A pilot study of a more-intensive monitoring protocol for herbaceous plants will also be conducted in NERI and DEWA this summer.

Invasive Species - Status and Trends

This vital sign is broad including plants, animals, diseases and pathogens. Assessments of the status of exotic invasive plants species in DEWA, FONE, FRHI, ALPO, and JOFL have been recently completed by the Pennsylvania Natural Heritage Program. This assessment is still ongoing for UPDE. Trends in exotic plant species will be monitored in association with the vegetation monitoring protocol as data collection begins this summer. A specific objective is to document how the number, composition, and proportion of non-native plant species are changing.

Japanese stiltgrass (Microstegium vimineum) at FRHI. Photo E. Zimmerman.



Early Detection/Surveillance Monitoring of Invasive Species

On January 22, 2007 a conference call was held to discuss the Invasive Species Early Detection protocol and its four components: Surveillance, Interactive web site, Database, and Rapid response. Conference call attendees included: Jennifer Stingelin Keefer (PSU/NPS), Matt Marshall, Stephanie Perles (PSU/NPS), Betsy Lyman (NPS), Tony Davis (TNC), Jamie Myers (NPS), Su Fanok (TNC) and Jeff Shreiner (NPS). Development of the database and species “watch lists” for each park is underway. In addition, Les Mehrhoff, Director, Invasive Plant Atlas of New England (IPANE), has offered his assistance and services to aid in the development of the protocol. Jennifer will resume protocol development next fall after her NPSpecies priorities are fulfilled.



Autumn olive (dark bluish green color) invades a former crop field in DEWA. Aerial photo courtesy of B. Agne.



Water Quality and Quantity

The new year began with a two day workshop to clearly articulate the objectives of the ERMN surface water quality and quantity protocol so that Pete Murdoch and Scott Sheeder have a clear picture of what to design. The workshop was very productive and Pete and Scott continue to make progress on this important protocol encompassing three vital signs.

Bluestone River. Photo S. Welsh.

Aquatic Macroinvertebrates

While formal protocol development is not yet underway in the ERMN, we're pleased to be included in a NPS/USGS funded project entitled “Ecological Thresholds and Structured Decision Analysis Using Aquatic Macroinvertebrate as Indicators of Stream Health in the Mid-Atlantic and Eastern Rivers and Mountains Vital Signs Networks”. The PIs on this effort are long time NPS collaborators Craig Snyder and Dave Smith at the USGS Leetown Science Center. This project will cover much of the important ground needed to develop an effective and efficient monitoring protocol. In the meantime, Caleb Tzilkowski continues to assist the ERMN with a variety of macroinvertebrate related projects. The latest is helping Jesse Purvis and the aquatic team at NERI identify macros that are part of their long term New River dataset.



Hendrickson Mayfly (Ephemerella subvaria). Photo C. Tzilkowski.

Photo T. Master



Louisiana Waterthrush

Drs. Brady Mattsson and Bob Cooper developed a draft protocol to survey Louisiana Waterthrush and other birds along tributary streams of the ERMN. In collaboration with Dr. Terry Master at East Stroudsburg University and four seasonal technicians, they will evaluate and continue to develop the protocol this spring (April – June) at NERI and DEWA. Matt will also evaluate the protocol at ALPO. The working sampling design includes randomization and stratification according to stream size, underlying geology, watershed topography, and proportion of the drainage within NPS ownership or state parks. Within each randomly chosen watershed, observers will record birds detected along a 1-km reach and at five point count stations along this stream transect.

Status of ERMN Protocol Development (continued)



Photo courtesy of NPS.

Soil Function and Dynamics

We're primarily interested in how soil chemistry is changing over time as it relates to acid and nutrient deposition. Monitoring efforts will assess the extent to which cation depletion, increased aluminum availability and/or nitrogen saturation are impacting park soils and vegetation. We hope to collect the first soil samples this summer in conjunction with the vegetation monitoring field work. The soil collection protocol is currently under development in consultation with soil scientists from USFS, NRCS, Penn State, and other NPS I&M networks.

Landscape Dynamics

There are lots of exciting things currently happening with ERMN landscape dynamics monitoring protocol development. The ongoing socioeconomic mapping project with Dr. Cindy Brewer continues to go well, DEWA is done in draft form and FONE/FRHI will be completed in the near future. Nate presented preliminary results at the I&M Data Manager's conference in February where it was very well received. This project has gone so well that we've decided to extend it to include the remaining ERMN parks this summer and fall. Nate attended the NARSEC (North American Network for Remote Sensing Park Ecological Condition), conference in March and came away with ideas for another development project that would compliment the aforementioned and round out the ERMN landscape dynamics monitoring protocol. Hopefully this next project will be initiated this FY. Finally, the ERMN was written into a collaborative NPS/NASA project that has received funding and began with a kick-off meeting in March (held in conjunction with the NARSEC conference). Dr. Andy Hansen of Montana State University is the lead principal investigator (PI) and Dr. Scott Goetz of the Woods Hole Research Center is our regional PI contact. The goals of this project remain flexible, but it will in some way attempt to incorporate satellite imagery and the information produced by small-scale NASA models into park ecological monitoring, management and condition forecasting. Due to Scott's familiarity with the park, DEWA is the primary focus of this initial effort, but the idea is to apply anything that we learn and deem useful from this project across the network and country.

NPSpecies Certification Update

All networks in the Inventory and Monitoring program have been directed by Steve Fancy, National Monitoring Program Leader, to complete all NPSpecies certification for birds, herps, mammals, fish and vascular plants by September 2007. Jennifer will be focusing most of her efforts from now until September on accomplishing this enormous task. In the past, we have

utilized taxa experts to assist in the certification of all taxa categories. However, it is not feasible to complete all of the certifications in this manner before the due date. Jennifer will be certifying the remaining taxa categories for each park. As new inventory data are collected and submitted, re-certification will continue until all taxa categories have been reviewed by a taxa expert.

Steve Grund, Botanist, Western Pennsylvania Conservancy, recently completed the certification of vascular plants for FRHI. He will be completing vascular plant certifications for FONE, ALPO and JOFL later this year.

If you have any questions about NPSpecies, please contact me at: 814-865-8497 or at jls227@psu.edu. Thanks, Jennifer.

Welcome !!

We would like to welcome Scott Woods and West Arete Computing, Inc. Scott and his team are working collaboratively with the ERMN and the ERMN protocol authors to develop monitoring databases and the system architecture needed to share future monitoring data. Thanks for your hustle getting some of the basics in place and working to get databases out in the field with Brady and Stephanie!

Calendar

April

- ◆ National Meeting of the Inventory and Monitoring Program held in conjunction with the George Wright Society Conference.
- ◆ Pilot data collection for herbaceous plants begins at NERI and DEWA.
- ◆ Pilot data collection for Louisiana waterthrush begins at NERI, DEWA and ALPO.

May

- ◆ Pilot data collection from vegetation monitoring plots at NERI.

June

- ◆ Pilot data collection from vegetation monitoring plots at ALPO, JOFL, FONE and FRHI. Pilot data collection for herbaceous plants continues at NERI and DEWA.
- ◆ Pilot data collection for riparian birds continues at NERI, DEWA and ALPO.

July

- ◆ Pilot data collection from vegetation monitoring plots at DEWA

August

- ◆ Pilot data collection from vegetation monitoring plots at BLUE and GARI

September

- ◆ Pilot data collection of herbaceous plants continues at NERI and DEWA



Canadian wild ginger (Asarum canadense). Photo S. Perles.



Squirrel corn (Dicentra canadensis). Photo S. Perles.

Thanks !!



Thanks to Scott Tiffney for many years of great work with the National Park Service! As you all know, Scott spent the last of these years working with all four NER I&M Networks doing his best to populate, maintain, and ensure a high level of data quality for each park's NatureBIB database. Due to his efforts, the NER NatureBIB databases are likely the best in country.



Parks of the Eastern Rivers and Mountains Network

Johnstown Flood National Memorial (JOFL)

Size(2004): 164 acres
Annual visitors(2004): 112,353

Friendship Hill National Historic Site (FRHI)

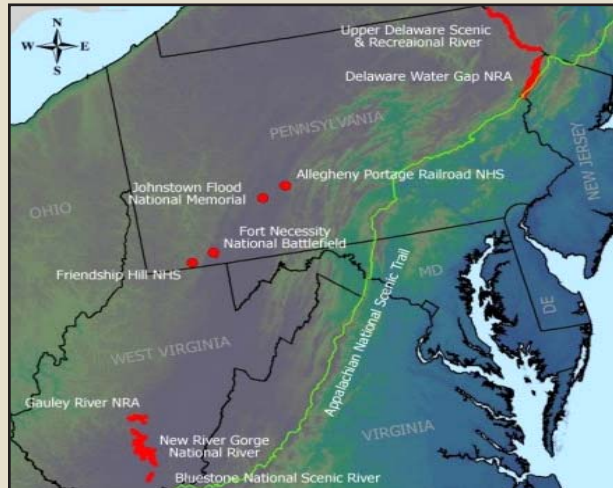
Size(2004): 675 acres
Annual visitors(2004): 29,891

Gauley River National Recreation Area (GARI)

Size (2003): 11,507 acres
Annual visitors(2003): 152,706

New River Gorge National River (NERI)

Size(2004): 72,189 acres
Annual visitors(2004): 1,152,073



Upper Delaware Scenic and Recreational River (UPDE)

Size(2004): 55,575 acres
Annual visitors(2004): 224,392

Delaware Water Gap National Recreation Area (DEWA)

Size (2004): 68,714 acres
Annual visitors(2004): 5,052,062

Allegheny Portage Railroad National Historic Site (ALPO)

Size(2004): 1,296 acres
Annual visitors(2004): 124,267

Fort Necessity National Battlefield (FONE)

Size(2004): 903 acres
Annual visitors(2004): 105,366

Bluestone National Scenic River (BLUE)

Size(2003): 4310 acres
Annual visitors(2003): 50,384

Eastern Rivers and Mountains Network

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National I&M - <http://science.nature.nps.gov/im/>